The Deployability of the IBCT in 96 Hours: Fact or Myth?

A Monograph
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Abstract

The Deployability of the IBCT in 96 Hours: Fact or Myth? LTC Jonathan B. Brockman, USA, 42 pages.

The Interim Brigade Combat Team was designed to allow the Army to rapidly deploy a lethal and survivable force into contingency areas across the entire spectrum of conflict. With the IBCT, the Army plans to fill the gap between capability and deployability that currently exists between heavy and light forces. The IBCT was designed to be more lethal, survivable, and combat effective than a light brigade and more deployable than a heavy brigade. As a deployment yardstick in designing the IBCT, the Army has used 96 hours – the Chief of Staff, Army's goal of having a brigade deploy anywhere in the world. To achieve this 96-hour goal the Army has designed the entire IBCT on being deployable by air. Because of airlift requirement for the IBCT, the brigade's logistical structure is very austere. When deployed into an operational area, the unit will depend on reach-back systems for much of its logistical support. This additional logistical support must be integrated either before or during the flow of the IBCT personnel and equipment into a contingency area to ensure the brigade's survivability and combat effectiveness.

The purpose of this monograph is to determine if the Army can deploy an IBCT in 96 hours. Since so much of the IBCT's credibility rests on being able to rapidly deploy, it is necessary to test the feasibility of the brigade being deployed within 96 hours. If the Army cannot deploy the brigade in 96 hours, the service needs to determine ways to enhance the IBCT's deployability. Furthermore, the author determined it necessary to examine sealift as a viable alternative to transporting the IBCT. Because of the brigade's logistical austereness, sealift of additional stocks with the brigade's organic equipment would enhance the unit's survivability and combat effectiveness. Furthermore, in the Army's design of this force, the author could not find any evidence that sealift had been tested as a viable alternative to airlift when deploying the IBCT.

The author gathered empirical evidence of the deployment of the IBCT using the Joint Flow Analysis System (JFAST) simulation. A JFAST simulated deployment was conducted to the country of Rwanda using both sealift and airlift from a CONUS-based location. A time phased force deployment data list was created using the JFAST database that was comparable to the current IBCT in weight, size, and number of personnel. The results of the simulation showed that it was impossible for the brigade to deploy within 96 hours, and that the brigade could deploy more rapidly by sea than by air. The simulation showed that airlift deployment time would be in weeks, not hours. This was due to limited throughput capability at third world country airfields as being the major constraining factor preventing a 96 hour deployment by air. This is particularly relevant because third world countries are sites of the most likely contingency operations that will require the deployment of an IBCT.

Based on the simulation results, the author recommends that the Army should rely on a combination of sealift and airlift in deploying the IBCT. The IBCT is too austere logistically, not to deploy additional stocks with organic units into a contingency area. These logistics either must be deployed before the IBCT or be integrated in the flow of IBCT personnel and equipment. A combination of sealift and airlift would deploy the IBCT into a contingency area more rapidly, more effectively use limited airlift assets, and ensure more survivability and combat effectiveness of the brigade. The Army should also explore the possibility of prepositioning an IBCT set of equipment afloat, since this would reduce sealift times from CONUS. Furthermore, the Army should stop advertising the 96-hour deployment goal, and instead focus on the fundamentals of modern deployment using both airlift and sealift.

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CHAPTER ONE

INTRODUCTION

General Eric Shinseki emphasized in his vision statement upon assuming his responsibilities as Chief of Staff, Army (CSA), the need for the service to be more strategically deployable into any spectrum of operation.

> We will provide the nation an array of deployable, agile, versatile, lethal, survivable, and sustainable formations, which are affordable and capable of reversing the conditions of human suffering rapidly and resolving conflicts decisively. The Army's deployment is the surest sign of America's commitment to accomplishing any mission that occurs on land.[1]

To accomplish this objective the CSA has directed the force to be more responsive and deployable. He spoke of responsiveness in terms of time, distance, and sustained momentum.

> We will provide strategic responsiveness through forward-deployed forces, forward positioned capabilities, engagement, and when called, through force projection from the Continental United States or any other where needed capabilities arise.[2]

With emphasis on deployability Shinseki said,

> We will develop the capability to put combat force anywhere in the world in 96 hours after lift-off – in brigade combat teams for both stability and support operations and for warfighting. We will build that capability into a momentum that generates a warfighting division on the ground in 120 hours and five divisions in 30 days.[3]

The genesis of the CSA's vision statement was the perception of slow deployment of Army forces on Operation Desert Shield (Saudi Arabia – 1990) and Operation Allied Force (Albania-1999).

During Operation Desert Shield, the first Army heavy division, the 24th Infantry Division (Mechanized) from Fort Stewart Georgia and one brigade combat team from Fort Benning Georgia, deployed in 48 days from the operation date (C+48).[4] The Ready Brigade of the 82nd

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[1] Louis Caldera and Eric Shinseki, "Army Vision," *Military Review*, September-October 2000, 3.
[2] Ibid., 4.
[3] Ibid.
[4] James K. Mathews and Cora J. Holt, *So Many, So Much, So Far, So Fast*: United States Transportation Command and Strategic Deployment for Operation Desert Shield/Storm, Joint History Office, Office of the Chairman of the Joint Chiefs of Staff and Research Center, United States Transportation Command (Washington: U.S. Government Printing Office, 1996), 250. Operation Desert Shield began 7 Aug 1990

Airborne Division had already been in theater, without any armored protection since C+2.[5] During Operation Allied Force, the Army deployed Task Force Hawk to Albania consisting of an aviation brigade combat team.[6] It took 38 days from initial warning order for this force to have deep operations capability in theater and 49 days to completely close into Albania.[7]

Before the Army's deployment experience in Albania in 1999 and the CSA's 1999 vision, Colonel Douglas Macgregor, a fellow at the Center for Strategic and International Studies, wrote *Breaking the Phalanx: A New Design for Landpower in the 21st Century*. Macgregor stressed the need for organizational reform of the Army's fighting units to make them more strategically responsive. "Fighting on short notice at the end of a long supply line and assuming the operational offensive without pause from the time ground forces arrive in a warfighting theater impose many requirements on the future of the U.S. Army. The most important of these will be to reduce the demand for extensive material support through training, organization, privatization, and modernization coupled with speeding of supply."[8] The advent of the Interim Brigade Combat Team (IBCT) is similar to the heavy combat group force proposed by Colonel Macgregor. His proposed force consists of a reconnaissance squadron, three combined arms battalions, an indirect fire battalion, a C4I battalion, and a group support battalion. Overall, Macgregor's proposed force consisted of 4,600 personnel.[9] The current IBCT consists of a reconnaissance and target acquisition battalion, three infantry battalions, a field artillery battalion,

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and 24th ID (Mechanized) completed its deployment into theater with the 197th Infantry Brigade from Fort Benning Georgia closing on 24 Sep.

[5] Ibid., 245.

[6] Department of Defense, *Report to Congress: Kosovo/Operation Allied Force After-Action Report*, 31 January 2000, 42-43. This unit included a corps aviation brigade headquarters, a corps artillery brigade headquarters with a Multiple-Launch Rocket System (MLRS) battalion, an attack helicopter regiment (Apache), a ground maneuver brigade combat team, a corps support group, a signal battalion, a headquarters troop battalion, a military police detachment, a psychological operations detachment, and a special operations command and control element.

[7] Cynthia M. Womble, *Task Force Hawk: Operational Mobility Lessons for the Joint Force Commander*, (Newport: Naval War College, 5 February 2001), 3.

[8] Douglas Macgregor, *Breaking the Phalanx: A New Design for Landpower in the 21st Century,* Center of Strategic and International Studies (Westport CT: Praeger Publishers, 1997), 230-231. Colonel Macgregor's book was published near the time of the 1997 Quadrennial Defense Review, where the Army was fighting for its relevance over the other services. Many believe that *Breaking the Phalanx* served as the catalysts for the Army as it moved into the 21st Century.

[9] Ibid., 76.

an anti-tank company, a signal company, and an engineer company, and totals 3,494 personnel.[10]

As one can see, the IBCT is similar to the heavy combat group proposed by Macgregor.

Experts outside the Army supported Macgregor's challenge. In 1999, shortly after Task Force Hawk, Jeffrey Record, a former professional staff member of the Senate Armed Services Committee, wrote that the Army should stop making marginal changes to its heavy forces and fundamentally reorganize into more strategically mobile combat groups.

> The issue is not whether the United States needs an army in the post-Cold war world: it does. Or whether it needs heavy forces; it does. Rather, the issue is whether the United States needs an army both lighter and more specialized for small-scale contingencies than it now has. I believe it does.[11]

One can conclude that Colonel Macgregor's *Breaking the Phalanx* was a challenge to the Army's senior leadership to reorganize the force into a lighter, more strategically responsive force. The CSA's 1999 Vision statement directed the Army to meet that challenge.

> The IBCT Organizational and Operational Concept explains the purpose of the IBCT. Army options available to warfighting CINCs for joint contingency response are too limited. Army light forces can deploy quite rapidly –within a matter of days – but they lack the lethality, mobility, and staying power necessary to assure decision. On the other hand, Army mechanized forces possess substantial lethality and staying power, but they require too much time to deploy, given current joint capabilities for strategic lift, affording the adversary too much time to prepare for the arrival of US forces.[12]

The IBCT is designed as a full-spectrum, early-entry combat force, intended to deploy within 96 hours of first aircraft wheels up.[13] The brigade will be self-sustaining for up to 72 hours once in the area of operations.[14] To enhance strategic responsiveness, the IBCT is designed to be fully C-130 aircraft transportable, with significantly less tonnage and sustainment support than that of a traditional heavy brigade combat team. Although the brigade has utility throughout the full-

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[10] U.S. Army, *Interim Brigade Combat Team: Organizational and Operational Concept*, 30 June 2000, 19.
[11] Jeffrey Record, "Operation Allied Force: Yet Another Wake-Up Call for the Army," *Parameters*, Winter 1999-2000, 15-23.
[12] *IBCT O&O*, 4.
[13] Ibid., 7-8.
[14] Ibid., 51.

spectrum of conflict, it is optimized for smaller-scale contingencies of the lower end of the conflict.[15]

With the IBCT, the Army plans to fill the lethality and deployability gaps which exist between heavy and light forces. Heavy forces are survivable and lethal, but require weeks to deploy as in the case of the 24th Infantry Division (Mechanized) in Operation Desert Shield (C+48). On the other hand, light forces can deploy quickly, but are not survivable and lethal in a medium to high intensity environment. The Ready Brigade of the 82nd Airborne Division rapidly deployed in Operation Desert Shield.[16] However, it lacked the lethality and survivability to defend against tanks.

The main advantage of the IBCT's design is its deployability. However, can the Army deploy a brigade anywhere in the world in 96 hours? Before any analysis in answering this question, the reader needs to understand the true austereness of the IBCT's logistical capabilities. An answer on if the IBCT is deployable within 96 hours can be approached by conducting a transportation feasibility analysis of the IBCT using a simulation to determine feasible deployment timelines. The simulation identifies factors that the Army can use to enhance the deployability of the IBCT. The recommended enhancements should meet the following criteria. First, recommendations will be based on empirical results, through either simulation or quantifiable evidence; and second, recommendations will be limited to the use of existing Department of Defense resources. It is beyond the scope of this monograph to discuss the need for more transportation assets. Instead, the author will focus on efficient use of existing assets to enhance strategic deployability. Chapter 4 will address other important considerations beyond the simulation and which are currently assumed in the IBCT design. These considerations are Reception, Staging and Onward Integration (RSOI); air superiority; and airfield security.

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[15] Colonel Michael Mehaffey, "Vanguard of the Objective Force," *Military Review*, September-October 2001, 6-7.
[16] Mathews and Holt, 245. The Ready Brigade began arriving in Saudi Arabia on 9 Aug 90 (C+2). Their deployment was complete on 14 Aug 90 (C+7).

CHAPTER TWO

IBCT LOGISTICS

Before any discussion on the deployment of the IBCT, the reader needs to understand the

true austereness of the IBCT's logistical structure. The *IBCT Organizational and Operational*

Concept states:

> The CSS structure of the IBCT is purposefully austere to enhance deployability
> and force mobility. Initial sustainment will rely on a combination of unit basic
> loads and strategic configured sets pre-positioned to arrive in theater early. Self-
> sustained operations for 72 hours of combat is the threshold capability.
> Sustainment stocks must be integrated into the deployment flow to sustain early
> arriving elements beyond the initial 72 hours.[17]

These 72 hours include fuel, ammunition, and water. The *IBCT Organizational and Operational*

Concept assumes that theater resupply systems for fuel, ammunition, and water must exist before

the IBCT can be deployed. If these resupply systems do not exist before the brigade's

deployment, then the IBCT risks its survivability and ability to accomplish any mission. The

assets and personnel to establish and operate these resupply systems will compete with the

organic units of the IBCT for initial airlift.

Fuel is the most critical shortfall in the logistics capability of the IBCT. The brigade is

totally dependent upon an established fuel system in theater. The IBCT only deploys with

packaged petroleum, oil, and lubricants, and the fuel which exists in the fuel tanks of its vehicles.

According to the *IBCT Organizational and Operational Concept* fuel distribution will be

accomplished within the contingency area with 14-2,500 gallon fuel trucks with 14 trailers

holding two 500 gallons drums. However, none of these assets carry fuel when in-flight.[18] The

theater is to provide these fuel stocks. Furthermore, a Light Armored Vehicle (LAV), similar to

that which the IBCT will possess, has a fuel capacity of 53 gallons with a range of 312 miles in

non-combat conditions.[19] In combat conditions a LAV will need to be refueled between six to

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[17] *IBCT O&O*, 51.
[18] Ibid.
[19] Michael K. Robel, "Medium Brigade Flaws and the Cure: The IBCT Revisted," *The Strategy Page*,
www.strategypage.com.

eight hours of sustained combat.[20] However, the Air Force will not transport vehicles with full-fuel tanks. The Air Force may require vehicles to have less than a quarter tank of fuel before airlift.[21] Therefore, in order to have any combat effectiveness, a LAV will have to be refueled during the Reception, Staging, and Onward Integration phase of the deployment. By these estimations, it is doubtful that the IBCT could sustain without additional fuel within the first 24 hours after arrival in theater. It is imperative that an established fuel distribution system is in-place before the arrival of an IBCT. The delivery of fuel in theater will compete with IBCT organic units for airlift.

As with fuel, the brigade relies on an established theater ammunition resupply system. The *IBCT Organizational and Operational Concept* only addresses the capabilities of the brigade ammunition section to receive and issue ammunition.[22] The IBCT will only deploy with its basic load of ammunition. If an ammunition resupply system is not in-place, and the brigade participates in high intensity combat soon after arriving at the APOD, then the unit will risk expending all ammunition within three days. For example, the basic load for each 155mm Howitzer is 135 Dual Purpose Improved Conventional Munition (DPICM) rounds. If the brigade conducts an attack, in high intensity conflict conditions, the required supply rate for each of the 18 howitzers in an IBCT is 50 DPICM rounds per day. Therefore, if a resupply system is not in-place, the howitzers will expend all DPICM rounds within three days after the attack is launched.[23]

For water supply, the IBCT also relies on a bulk distribution system of water in theater. According to the *IBCT Organizational and Operational Concept,* until the system is established

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[20] U.S. Army, *Student Text 101-6: Combat Service Support Battle Book* (Fort Leavenworth KS: July 2001), 4-8. This manual does not have the planning consumption rates for a LAV. Therefore, the author used the fuel consumption rates for a M113 Armored Personnel Carrier. In combat conditions, an M113 consumes 6.4 gallons per hour if idle, and 8.6 gallons per hour if on the road. Using the 53 gallon capacity of a LAV divided by 6.4 equals eight hours and divided by 8.6 equals six hours.
[21] From the author's experience as a battalion commander deploying vehicles via airlift, the Air Force required all vehicles to have no more than a quarter tank of fuel.
[22] *IBCT O&O*, 53.
[23] *ST 101-6*, 4-11.

regionally procured bottled water is to be used.[24] However, bottled water probably will not meet

the requirements of the brigade and regionally procured bottled water may not be available. In

stability and support operations, a brigade's mission may be to provide water to the indigenous

population. Additionally, water is necessary for medical, hygiene, mortuary affairs, engineer

operations, and maintenance operations. In an arid environment, each soldier requires nearly 14

gallons of water per day.[25] Clearly, a water distribution system will have to exist in theater before

the arrival of the IBCT. These water distribution assets will have to flow with or before the

IBCT.

The repair parts the IBCT deploys with are also very limited. According to the *IBCT

Organizational and Operational Concept,* the IBCT only deploys with "sufficient authorized

stockage list items and combat spares to sustain austere maintenance operations for

approximately 96 hours. Critical requirements will be delivered by airdrop as far forward as

possible."[26] Therefore, if a vehicle breaks down, and the repair part is not readily on-hand, then

the brigade must wait until that part is air delivered.

In relation to spare parts and fuel, there is no aviation support organic to the IBCT. The

IBCT Organizational and Operational Concept states that "aviation augmentation from division

troops is required to expand the IBCT's ability to shape its battlespace and conduct decisive

tactical operations in the MTW."[27] Helicopters require sophisticated logistical support that must

be considered when deploying with an IBCT. This logistical support will compete with the

organic units of the IBCT for initial airlift

The combat health services of the brigade are also very austere. The capacity of the

forward medical company is only 20 patients. Casualties that cannot be returned for duty by

IBCT organic medical assets will have to be evacuated to a higher echelon medical treatment

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[24] *IBCT O&O*, 53.
[25] *ST 101-6*, 4-5.
[26] *IBCT O&O*, 53.
[27] Ibid., 58.

facility.[28] Combat health support to the IBCT is focused on the stabilization of wounds and injuries and early evacuation of casualties from the contingency area. The IBCT is dependent on a corps hospital somewhere in the theater. However, transportation to the corps hospital may be a challenge, given the limited throughput of airfields and absence of an organic helicopter air medical evacuation unit. Based on its medical design, the IBCT would not be able to handle a significant number of casualties. Therefore, additional medical assets, possibly a mobile surgical hospital, would have to deploy with the IBCT.

By design one has to conclude the brigade must have logistical stocks in theater prior to their arrival, or be prepared to flow the stocks in with the troops, or run out of fuel, ammunition, food, and water in 72 hours. The author could not find any evidence where this flow of additional logistics is calculated into the 96-hour deployment time. The *IBCT Organizational and Operational Concept* does state, "additional sustainment must be integrated within the deployment flow to insure continuous support to operations beyond the initial 72 hours."[29] Further, the concept states, "aerial resupply of operational stocks will sustain the IBCT for as long as it takes to establish an alternate LOC."[30] A logistical base will have to be set-up and operational as soon as possible after the first troops arrive in theater. The airlift to establish additional theater logistics will compete with the lift of moving the IBCT and increase the deployment timeline of the unit. Furthermore, the Army should not count on host nation support from any country where an IBCT could deploy. To highlight lack of host nation support, one only has to examine current conditions in Afghanistan, where the U.S. Central Command planners have been confronted with the refueling challenge. Afghanistan possessed no fuel resupply capability before Operation Enduring Freedom.[31] Countries such as Rwanda and Somalia, where an IBCT could deploy, lack any credible host nation support.

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[28] Ibid., 54.
[29] Ibid., 52.
[30] Ibid.
[31] Based on CENTCOM brief to AOASF 14 March 2002.

Without logistical infrastructure established in theater, the IBCT will be of limited use after 72 hours. Even the 72-hour limit is questionable if it quickly uses the fuel in its fuel tanks and participates in any significant combat action where it will use much ammunition. The simulations discussed in chapter three include only the organic logistics, since the 96-hour statement of intent is predicated on only these organic, austere logistics.

CHAPTER THREE

IBCT DEPLOYMENT TESTED IN SIMULATION

The CSA's vision of being able to deploy a brigade anywhere in the world within 96 hours can be tested for transportation feasibility using a simulation. A simulation can allow a planner to analyze the factors that go into the deployment equation and to determine if forces can deploy within the CSA's directed timeframes using existing transportation assets and infrastructure. Before discussing the deployment simulation, the reader must understand the basics of force planning. With accurate force planning, a planner can efficiently use transportation assets to deploy forces.

The purpose of force planning is to identify all forces needed to accomplish the supported CINC's concept of operations and phase those forces into the theater. Force planning consists of determination of force requirements, development of force list to meet those requirements, and force shortfall identification and resolution. Even though the CINC is responsible for force planning, the service components do most of the work.[32] Army Major Commands (MACOMS) must work with CINCs in thoroughly analyzing and developing requirements then ensuring those requirements are accurately portrayed in deliberate operations plans.

The basis for a CINC's force planning is the Joint Strategic Capabilities Plan (JSCP). The JSCP assigns the CINC the tasks of preparing operation plans in complete format and

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[32] Joint Forces Staff College, The Joint Staff Officer's Guide 2000 -JFSC Pub 1, *The Joint Staff Officer's Guide* (Norfolk: National Defense University, 2000), 4-56.

identifies major combat forces and strategic transportation assets to use to develop each operational plan.[33] Each operational plan (OPLAN) identifies the forces and supplies required to execute the CINCs concept and a movement schedule of these resources to the theater of operations.[34] Each OPLAN has to include a Time-Phased Force and Deployment Data (TPFDD). A TPFDD is the Joint Operation Planning and Execution System (JOPES) data base portion of an operational plan; it contains time-phased force data, cargo and personnel data, unit locations, modes of transportation, points of embarkation (POE) and points of debarkation (POD), available to load dates, and required delivery dates.[35] A TPFDD must be analyzed for transportation feasibility to ensure it is executable.

The Joint Flow Analysis System (JFAST) is an application software tool designed to help planners assess the transportation feasibility of a course of action (COA). The software system analyzes a TPFDD for transportation as part of the deliberate planning process. Planners build TPFDDs in JFAST, which include modes of transportation, aerial and sea POE's embarkation (APOEs and SPOEs) and PODs (APODs and SPODs); availability to load dates; required delivery dates, and transportation assets (number and types of ships and aircraft). The positioning of ships before an operation day (C-day) can be manipulated as well. A JFAST-developed TPFDD displays number of personnel by battalion or separate company and weight of equipment by unit. After running a TPFDD through JFAST, the output includes the total deployment time. This is also divided into time between transportation nodes. In addition, JFAST provides the number and type of transportation assets used, cargo and personnel delivery dates, and the shortfall of cargo and personnel that could not be delivered due to lack of transportation assets.[36]

JFAST also accounts for port throughput. Throughput is the quantity of cargo and personnel that can pass through a port on a daily basis from arrival at the port to loading onto a

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[33] Ibid., G-48.
[34] Ibid., G-60.
[35] Ibid., G-78.
[36] The author determined these limitations by conducting numerous simulations using JFAST version 6.1.

transportation asset, or from unloading a transportation asset and clearing a port.[37] Throughput is driven by the quality and quantity of infrastructure at a port. For example, runway length and ramp space determine the maximum number of airplanes that can be on the ground (MOG). An airfield's MOG directly effects the airfields throughput -the smaller the MOG, the smaller the throughput. Every major port throughput data in the world is accounted for in JFAST and can be adjusted as circumstances change.

However, the information provided by JFAST has its limits, particularly in the older version of 6.1 used for this research. JFAST 6.1 gives unit clarity only down to battalion level and does not tell a planner how many vehicles by type are in each battalion. A planner must still rely on Modified Tables of Organization to determine number and types of vehicles. JFAST 6.1 does not support intratheater movements and does not identify staging areas; marshaling areas, intermediate staging bases, and tactical assembly areas. JFAST, being a simulation, does not account for the friction that occurs in units during a deployment; such as missed load dates, equipment maintenance problems, and weather conditions. The simulation simply runs a TPFDD from POE to POD. The 6.1 version of the software did not measure the land movement time from POD to final destination.

The Reception, Staging, and Onward Integration phase is not evaluated in JFAST. This phase consists of the essential processes required to transition arriving personnel, equipment, and materiel into forces capable of meeting operational requirements.[38] The failure to synchronize airflow and sea flow, results in long stays in port by soldiers awaiting equipment, over concentration in staging areas, and strained available reception capability. Dates given in the simulation are based upon when transportation assets arrive at POE, load, arrive a POD, and unload. JFAST does not determine when units stage the equipment and forces and clear the port area. The system does account for the early arrival of movement control teams and port handlers,

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[37] JFCS Pub 1, G-78. Port as discussed throughout this paper means airfields and seaports.
[38] Joint Chiefs of Staff, *Joint Publication (JP) 4-01.8: Joint Tactics, Techniques, and Procedures for Joint Reception, Staging, Onward Movement, and Integration*, 13 June 2000,GL-10.

if they are included in a TPFDD. However, the system does not require that these critical units be used.[39]

Even with these constraints, a planner can manipulate much of the data in JFAST to assess certain deployment factors. A planner can adjust ship positions, routes, available transportation assets, and port throughput. A planner can adjust the positions of ships (prior to C-day) in relation to the SPOE to measure differences in transportation time. Planners can change the numbers and types of transportation assets and change port throughput capabilities to measure differences in delivery times.

The author developed several TPFDDs and tested their transportation feasibility using JFAST 6.1.[40] Even though the Army designed the IBCT to be entirely C-130 transportable, the author did not use C-130 aircraft in the simulations because the simulated deployments required the greater range of C-5 and C-17 inter-theater airlift rather than the limited range of C-130 (2,897 miles) intra-theater airlift. The proposed stationing of the IBCT's (Fort Lewis, Pennsylvania, and Hawaii) prohibits C-130 usage in all potential hot spots. Hawaii is nearly 4,000 nautical miles from Korea. Fort Lewis is nearly 5,000 nautical miles to Korea and Pennsylvania is nearly 5,000 nautical miles from Southwest Asia. These IBCT's would have to use strategic airlift, C-5's and C-17's, to deploy anywhere outside North America. The C-5 aircraft has a range of 6,320 miles and a maximum cargo capacity of 135 short tons. The C-17 has in-flight refueling capability and has a maximum cargo capacity of approximately 85 short tons.[41] The main advantage of the C-17 is the elimination of the requirement for transshipment airfields and the ability of direct delivery of cargo to the APOD.[42]

If the Air Force flew strategic airlift to a transshipment airfield, this would require the transfer cargo to C-130 aircraft to fly to the APOD in the contingency area. The transfer of cargo

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[39] Ibid., I-6.
[40] JFAST 6.1 version of the software was used for security classification reasons.
[41] United States Air Force, *AMC Fact Sheet*, www.transcom.mil/AMC.
[42] Major Kevin Webb, USAF, interview by author, Fort Leavenworth, KS, 16 April 02. Major Webb is a C-17 pilot attending CGSC.

possesses additional challenges to the Army and Air Force and further lengthens the deployment timeline. With perfect conditions, the Air Force plans on a transfer cargo time of three hours per aircraft. All cargo carrying pallets must be built to a smaller C-130 configuration to ensure rapid transfer. Therefore, the carrying capacity of the strategic airlift may be limited due to this constraint. Furthermore, a staging area at the transshipment airfield will have to be established, because the ability to conduct direct transfer of cargo is unlikely. The establishment of a transshipment airfield will require the Army to deploy an Arrival Departure Airfield Control Group and the Air Force to deploy a Tanker Airlift Control Element.[43] The C-17 allows for direct delivery of cargo and eliminates the resource requirements of operating a transshipment airfield. Based on this evidence, the Army should be more concerned with maximizing the airlift potential of the C-17, rather than the C-130.

The sealift assets used in the JFAST were fast sealift ships with a speed of 27 knots per hour; roll-on/roll-off ships with a speed of 21 knots per hour; and breakbulk ships with a speed of 18 knots per hour.[44] The author used only U.S. ships because of historical unwillingness and diplomatic sensitivity of other countries to support all U.S. military action. In Operation Desert Shield, some foreign crews hesitated to complete voyages to the Persian Gulf demonstrating their lack of dependability in future conflicts.[45]

The author chose a Rwandan scenario to test the deployability of an IBCT based upon Alan J. Kuperman's book *The Limits of Humanitarian Intervention: Genocide in Rwanda*. Kuperman, a resident fellow at the University of Southern California's Center for International Studies, examined the potential effects of humanitarian military intervention to stop the 1994 ethnic genocide in Rwanda. His arguments on the limitations of military force and the need for policy in the region are beyond the topic of this monograph. However, Kuperman proposed force

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[43] LTC(P) Brian Water, USA, interview by author, Fort Leavenworth, KS, 16 April 02. LTC(P) Waters is a Advanced Operational Arts Studies Fellow and a former commanders of a transportation battalion.
[44] Military Sealift Command, *Fact Sheet*, www.transcom.mil/msc.
[45] Mathews and Holt, 136. "For a variety of reasons –political, religious, pay disputes, and most commonly fear of entering a combat zone, crews on at least 13 foreign flag ships carrying U.S. cargo hesitated or refused to enter the area of operations."

requirements necessary to stop the genocide, which are very similar to the size and capabilities of an IBCT. Additionally, Kuperman empirically analyzed the hypothetical deployment of U.S. Army forces into Rwanda. He used this analysis as evidence to demonstrate the amount of time it would take to deploy forces into Rwanda. Kuperman proposed a force that could have been used in the country for what he calls the maximum intervention course of action to stop the genocide in April 1994.

> A maximum intervention would have required deployment of a force roughly the size of a U.S. division - three brigades and supporting units, comprising 15,000 troops. The rules of engagement would have permitted deadly force to protect the lives of endangered Rwandans. After entering and establishing a base of operations at Kigali airport, the force would have focused on three primary goals: (1) halting armed combat and interposing between FAR and RPF forces on the two main fronts of the civil war in Ruhengeri; (2) establishing order in the capital; and (3) fanning out to halt large-scale genocidal killing in the countryside. None of these tasks would have been especially difficult or dangerous for properly configured and supported U.S. troops once in Rwanda.[46]

Kuperman's proposed force requirements and capabilities for maximum intervention would support the deployment of an IBCT as a subordinate element within such division. As Kuperman postulated, "the first brigade to arrive would have been responsible for Kigali–coercing the FAR and RPF to halt hostilities, interposing between them, and policing the capital."[47] The IBCT would have been ideal for such a mission. The IBCT is optimized primarily for employment in smaller scale contingencies in complex and urban terrain fighting low and medium threats.[48] According to the *IBCT Organizational and Operational Concept* in stability and support operations, the brigade participates "as an initial entry force and/or as a guarantor to provide security for stability forces by means of its extensive combat capabilities."[49]

Kuperman also proposed a force for moderate intervention, which would not be placed in direct contact of the warring factions. Kuperman wrote, "A more modest

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[46] Alan J. Kuperman, *The Limits of Humanitarian Intervention: Genocide in Rwanda*, (Washington D.C: Brookings Institute Press, 2001), 64. The two military forces involved in the conflict were the Rwandan Armed Forces (FAR) and the Rwandan Patriot Front (RPF).
[47] Ibid., 65.
[48] Mehaffey, 9.
[49] *IBCT O&O*, 7.

intervention designed to reduce force requirements and the risk of casualties would have

refrained from deploying U.S. troops to any area in Rwanda in which FAR and RPA

troops were actively engaged in combat."[50] Further, Kuperman discusses the force

structure requirements for moderate intervention.

> A single, reinforced brigade would have sufficed, given that the territory, population, specific tasks, and potential adversaries would not have been as great as those envisioned in the maximum intervention. Ideally, the ready brigade of the 101st Air Assault Division would have been designated, supplemented by two additional light infantry battalions, support units for peace operations, and additional helicopters and motorized vehicles –for a force of 6,000 personnel, weighing about 10,000 tons.[51]

The moderate intervention force proposed by Kuperman is similar in size, weight, and

capabilities (less helicopters) to an IBCT employed separate from a division.[52]

The deployment challenge presented to a planner is another reason for choosing Rwanda

as a deployment scenario for the IBCT. The nearest seaport to Rwanda is in Mombassa Kenya.

Kuperman wrote, "Transporting a force of appropriate size 10,000 miles to a landlocked country

with limited airfield capability is not a trivial exercise, and would have taken considerably longer

than some retrospective appraisals have suggested."[53]

Since an unclassified TPFDD does not exist within JFAST for the current IBCT, the

author had to configure a force that resembled the IBCT in number of personnel and weight of

equipment. The JFAST 6.1 TPFDD developed weighed 9,233 short tons comparable to the

IBCT's 10,503 short tons; had 4,010 personnel comparable to the IBCT's 3,494 personnel; and

possessed 190,220 square footage comparable to the IBCT's 191,461 square footage.[54] It is

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[50] Kuperman, 71.
[51] Ibid.
[52] *IBCT O&O*, 19, and www.strategypage.com. The *IBCT O&O* on page 19 lists the personnel strength at 3,494. Robel specifies the IBCT weight at 10,503 short tons. Tons are the standard unit of measure for airlift cargo. Specifically, airlift uses short tons (2,000 pounds) as a common term.
[53] Kuperman, 64-65.
[54] The weight of the IBCT is derived from Robel. According to Sandra I. Erwin, "Slimmer Brigade Still is Not Trim Enough," *National Defense Magazine,* www.nationaldefensemagazine.com, December 2000, the IBCT at that time had a weight of 12,000 short tons, and the goal was to get it to 7,800 short tons. The author verified initial design weight of 10,000 short tons identified by Scott F. Smith, *Boots in the Air: Moving the New Army Brigade* (Maxwell AFB: School of Advanced Airpower Studies, Air University, June 2000), 42. The square footage of the IBCT is derived from Military Traffic Management Command*, MTMCTEA 94-700-5: Deployment Planning Guide: Transportation Assets Required for Deployment*

important to highlight the square footage versus the weight. In designing the IBCT, the Army has

been concerned with weight and square footage. Major General James Dubik, current

Commanding General, 25th Infantry Division (Light) and former deputy Commanding General for

Transformation, Training and Doctrine Command, said in an interview in the September-October

2000 issue of *Military Review*:

> We have asked scientists to develop materials for a vehicle that is lethal and
> survivable, but lighter and deployable, the kind of vehicle we will need for the
> transformed Army. Such a vehicle should weigh 20 to 25 tons and fit into C-130
> aircraft so it can get anywhere. [55]

Aircraft typically "cube-out" due to space restrictions, before they "gross-out" due to

weight restrictions.[56]

The author used three light infantry battalions and one mechanized infantry battalion in

JFAST to replicate the IBCT's three line infantry battalions and reconnaissance and target

acquisition battalion. The weight, personnel size, and square footage of the JFAST force had to

be comparable to the actual weight of the IBCT to accurately simulate the air deployment. When

replicating transportation challenges weight, number of personnel, and square footage of units are

the only factors that really matter. The simulation was conducted not using an exact IBCT

TPFDD. However, a TPFDD was used that replicated an IBCT closely in weight, vehicle square

footage, and personnel. Therefore, results can be interpreted from the simulation and be related

to the IBCT.

For the simulated deployment of the IBCT, the author used home-station locations to

replicate the existing IBCT as closely as possible. Even though the IBCT is designed to be only

airlifted, it is important to test the transportability of the IBCT via sealift. The author wanted to

examine all transportation assets available, and not assume that sealift was always slower than

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(Newport News VA: MTMC, 1994), A-9. This is the figure quoted for a separate infantry battalion.
JFAST lists a square footage for a heavy BCT at 275,000. 191,461 square feet are probably too low.
However, it does support this analysis and a higher number of square footage certainly would not attribute
to a faster deployment
[55] Major General James Dubik, "IBCT at Fort Lewis," *Military Review*, September-October 2000, 18-19.
[56] United States Air Force, *Lesson 2, Reading 7 USAF Force Projection Fact Sheet AY 98/99,* www-
cgsc.army.mil/usaf/Courses/AY98-99/300/Lesson2_Rdng7.htm C/M/S300, 10 June 1998.

airlift. Therefore, the IBCT was deployed via airlift and sealift. The JFAST force's origin was

Fort Lewis, Washington, the APOE was McChord Air Base, Washington, and the SPOE was

Tacoma, Washington. The APOE and SPOE chosen for the simulation are most likely the actual

APOE and SPOE chosen for the deployment of the Fort Lewis-based IBCT. The APOD for the

deployment was Kigali International Airport (IAP), Rwanda. This was the same APOD used for

U.S. forces in Operation Support Hope. The SPOD, as previously discussed, was the seaport at

Mombassa, Kenya. This was the same SPOD used for forces in Operation Support Hope.

Initially a JFAST simulation was performed using an air fleet of 60 C-141s, 50 C-17s,

and 50 C-5s. To ever think a commander would receive these numbers of aircraft to move a

single brigade is overly optimistic. Simply increasing the numbers of aircraft to 120 C-141s; 140

C-17s (the Air Force will only have 134 in 2004); and 60 C-5s, did not decrease the deployment

time of the IBCT at all, due to throughput limitations at the Kigali IAP.[57] However, when the

throughput limitations at both the APOE and APOD were turned-off and ignored in the

simulation, then the entire IBCT closed by C+4 using the JFAST default air fleet (60 C-141's, 50

C-17's, and 50 C-5's). The daily cargo throughput that Kigali IAP can unload due to limited

ramp space is only 400 short tons. Kuperman discusses the capability of Kigali IAP in the

humanitarian Operation Support Hope in 1994.

> At Kigali airport, the maximum one-day throughput was 526 tons. In addition,
> during a particularly busy four-day stretch, the airport handled thirty-three
> strategic and twenty-six tactical U.S. sorties, possibly in addition to a few NGO
> flights, a daily average of at least eight strategic and six tactical sorties.
> Assuming a realistic capacity of five C-141, three C-5, and six C-130 aircraft per
> day, the airport would have a maximum sustainable cargo throughput of
> approximately 400 tons daily.[58]

The JFAST modeled airlift of an IBCT into Kigali required 29 days. The JFAST model

accounted for 23 days to unload cargo at Kigali (9,233 short tons/400 short tons per day

[57] Colonel Robert C. Owen and Captain Todd A. Fogle, "Air Mobility Command and the Objective Force:
A Case for Cooperative Revolution," *Military Review*, January-February 2001,16.   Current plans call for
an in-place fleet of 134 C-17's 2004.
[58] Kuperman, 127.

throughput) then added an additional six days for loading cargo at the APOE and transit time.

Further highlighting the limited Kigali IAP cargo daily throughput capability of 400 short tons, a simple comparison to the APOE, McChord Air Force Base, (AFB), which has the daily throughput capability of 2,800 short tons, demonstrates the inadequacies of many APOD facilities. Therefore, a planner can conclude that cargo throughput limitations are definitely a significant deployment constraint. An airfield's ability to process, unload or load, cargo is critical to timely deployment of forces. An increase in airplanes will not get the IBCT deployed in four days using a single airfield, which has limited runway and ramp capacities.

The likelihood of deploying an IBCT to regions, such as Rwanda is very great. Many of these third world countries have airfields with limited throughput capability. Indeed the poor conditions of the airfields in Somalia limited the build-up of forces in 1992 in Operation Restore Hope.[59] Several other airfields in third world countries further highlight this point. Liberia's Monrovia Roberts International Airport has a daily throughput capability of 516 short tons. Dar Es Salaam Airport in Tanzania has a daily throughput capability of 344 short tons. Bole International Airport in Ethiopia has a daily throughput capability of 172 short tons.[60] These capabilities demonstrate the limitation of worldwide throughput, especially in third world countries. The IBCT will most likely deploy to these type of countries.

As previously discussed, the author also examined moving the IBCT using sealift. Even though the IBCT has been designed to deploy only by airlift, it is important to test the viability of sealift. Sealift is one of the three major components of the strategic mobility triad that must be empirically explored before concluding only to use one mode of transportation. Furthermore, with sealift the IBCT could deploy with additional logistic stocks to enhance its survivability and

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[59] David Kassing, *Transporting the Army for Operation Restore Hope* (Santa Monica CA: Rand Corporation, 1994), 23. Kassing states that AMC had the airlift to deliver 85,000 tons in 42 days. However, due to the poor capacity of the four airfields used in the country, less than 30 percent of the estimated 85,000 tons were actually delivered in the first six weeks of the operation.
[60] U.S. Air Force, AMC Airfield Suitability Report at www.afd.scott.af.mil. The author obtained the MOG for each of these airfields then converted the MOG into daily throughout capability in short tons.

combat effectiveness. Airlift severely limits the deployment of these stocks. Therefore, it is necessary to measure the sealift deployment timelines and compare them with the airlift deployment timelines. Only with such empirical evidence can a planner make informed recommendations on the use of transportation modes when deploying the IBCT.

The sealift scenarios were run using different types of ships and different ship positions before C-day. Using two fast sealift ships positioned on the U.S. West Coast before C-day, the IBCT was able to close into Mombassa in 21 days. With the two fast sealift ships positioned in the Gulf of Mexico before C-day, the IBCT took 28 days to close into Mombassa. Therefore, this simulation run concludes that a ship's positioning, before C-day, effects total deployment time. In this case, deployment time was effected by seven days.

Additionally the types of ships used effect deployment time. In this course of action, a one-day difference resulted in using the old breakbulk ships and the lash ship, versus the two fast sealift ships.[61] With two breakbulk ships and one lash ship positioned in the Atlantic Gulf before C-day, the IBCT took 29 days to close into Mombassa.

The IBCT would have to undergo Reception, Staging, and Onward Integration operations at the seaport of Mombassa. The additional logistical stocks would require wheeled transportation assets from corps. With these corps transportation assets, consolidated with the IBCT's organic wheeled vehicles, the brigade could conduct a road march through Kenya and Tanzania, into Rwanda.

Kenya has 63,800 kilometers of roads, of which only 8,868 kilometers are paved. Tanzania has 88,200 kilometers of roads, of which only 3,704 kilometers are paved. Even worse, Rwanda has 12,000 kilometers of roads, of which only 1,000 kilometers are paved.[62] This part of the deployment was extremely difficult to model. JFAST 6.1 version produces no results for land movement. The author determined through map analysis that the road march from Mombassa to Kigali would be approximately 600 miles. Using an average speed of 25 miles per hour, it would

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[61] In other JFAST scenarios the time difference was as great as four days when using FSSs.
[62] Central Intelligence Agency, *CIA World Fact Book 2001*, www.ciafactbook.com.

take the IBCT approximately 24 continuous hours of driving to conduct the road march. Allowing for rest stops, security, detours, etc., one has to allow at least three days to make this journey. Therefore, after Reception, Staging, and Onward Integration in Mombassa Kenya on C+21, the IBCT would not arrive into Kigali Rwanda until C+24, at the earliest.

Figure 1 shows the results of the simulated JFAST deployment of the IBCT into Rwanda.
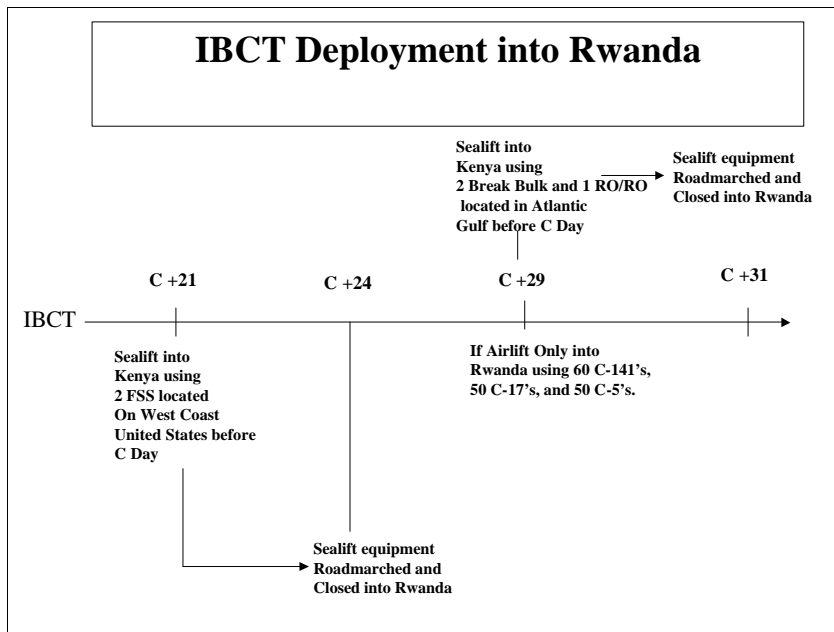

Figure 1 IBCT JFAST Deployments

The two most important results from the simulation are that the Air Force cannot airlift the IBCT in four days, and it is faster to deploy the IBCT's equipment by sea than by airlift. Several sensitivity analyses were conducted on the factors of throughput, types and numbers of transportation assets, and positioning of ships before C-day. By using airlift only, the IBCT did not close into Rwanda until C+29; 25 days later than the CSA's goal.

The results of the simulation show that an IBCT could deploy using a combination of airlift and sealift. A scenario such as airlifting one third of the brigade in Kigali from McChord AFB; and sealifting the remainder of the brigade into Mombassa. This would allow initial force presence into Kigali to conduct limited missions. The first third of the brigade to be airlifted

could be the brigade command and control and a maneuver battalion. Their mission would be very limited, but the deployment would put troops on the ground rapidly.[63] Based on the JFAST simulation results, one could estimate such a force being airlifted within ten days.[64] The remainder of the brigade would deploy via sealift and close into Rwanda in 24 days. To use such a course of action would depend on the level of hostilities and the number of opposing forces in theater. The disadvantage is in placing too small a force on the ground, which may jeopardize their survival until C+24. The advantage is in rapidly establishing a presence in theater.

In summary of the JFAST deployment of an IBCT, several key points need to be highlighted. First, the simulation displayed that it was physically impossible to deploy an IBCT to Rwanda, a country where the Secretary of Defense could order an IBCT to deploy, in four days or 96 hours. Even when one increases strategic airlift to unrealistic amounts, the airfield throughput limitation, only 400 short tons of cargo per day, at Kigali IAP was the constraining factor in slowing down the air deployment. When the author ignored airfield throughput limitations by turning them off in the JFAST simulation, the IBCT arrived in Rwanda in four days (meeting the CSA's goal). The author did not use other Rwandan airfields in the simulation as additional APODs to reduce the throughput demands at Kigali International Airport. By using more APODs in Rwanda, the IBCT could be deployed more rapidly.

Airlift recommendations for improving the deployability of the IBCT in theater can be derived from the empirical evidence presented by Kuperman in *The Limits of Human Intervention*. Kuperman presented several deployment scenarios, which include the airlifting of U.S. Army air assault and light forces into Rwanda in 1994. The force that he picks for moderate intervention is a ready brigade for the 101st Airborne Division, with two additional light infantry battalions, support units, and Army aviation attached, consisting of 6,000 personnel and weighing 10,000 pounds. Less the Army aviation, Kuperman's proposed force is similar to the size, weight,

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[63] Kuperman, 73. Kuperman makes such a case under his minimal intervention course of action. Kuperman proposes an air assault brigade consisting of 2,500 troops and 4,500 short tons. One third of the IBCT would be 1,500 troops and 3,300 short tons.
[64] In JFAST it took 29 days to airlift the entire IBCT into Kigali. Therefore, the author estimates it would

and capabilities of the IBCT. The methodology that Kuperman used to calculate his deployment

timelines is very close to the JFAST 6.1 algorithms.[65]

Kuperman used two APODs in determining his deployment timeline, whereas only one

APOD was used in the JFAST simulation in chapter two.

> Strategic airlift would not have relied on Kigali airport, which was still a
> battleground in the civil war, but on Bujumbura Burundi, from which cargo could
> have been transported to western Rwanda by truck, helicopter, or fixed-wing
> tactical airlift. Entebbe would have been a stage to receive additional strategic
> airlift sorties and to transload cargo for tactical sorties to Bujumbura or the
> smaller airfields in the western half of Rwanda and neighboring Zaire.[66]

Kuperman calculates it would take 21 days to deploy a reinforced brigade from CONUS to

Rwanda using the two airfields (Bujumbura and Entebbe) as APODs.

> Airlift probably would have been most constrained by the load out from the
> United States, because the 101st Division can generate at most 600 tons of cargo
> daily. At that rate, seventeen days would have been required for loading out the
> force. Several additional days must be allotted for the delay between
> intervention order and the start of load out, the gradual ramp-up of theater airfield
> capacity, travel time to the theater, and unloading. Accordingly, the force could
> not have closed in the theater until more than three weeks after the deployment
> order.[67]

Bujumbura, Burundi and Entebbe Uganda are fairly close to Kigali.[68] However, the 101st

Division was constrained by the load out throughput of 600 tons of cargo daily at the APOE.[69]

Even though this reinforced brigade from the 101st Airborne Division is not an IBCT, it does

compare similarly to an IBCT in tonnage and square feet.[70]

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take approximately 10 days to deploy one-third of the force.

[65] The JFAST 6.1 simulation of the deployment of the IBCT-like force of approximately 4,000 personnel and 10,000 short tons into Kigali IAP took 29 days. Using Kuperman's methodology of simply dividing the greatest daily cargo throughput constraint at any node along the transportation route – 400 daily cargo short tons at Kigali IAP, into the total weight of the deployed force - 9,233 short tons, one arrives at 23 days for loading out the force and an additional six days for the delay between deployment order and starting airlift, ramp-up capacity of theater airfields, travel to theater, and unloading.

[66] Kuperman, 71-72.

[67] Ibid.

[68] Ibid. Discussing Operation Support Hope, the humanitarian operation in April 1994, Kuperman says that cargo throughput capacity could have been increased by utilizing the airport at Bujumbura. Cargo would then have to be trucked less than 100 miles into Rwanda.

[69] Ibid., 59. Kuperman bases this on the historical evidence from Desert Shield on the daily load out rate of the 82nd Airborne Division.

[70] An IBCT weighs approximately 10,000 short tons, as already been referenced in this monograph. Since

If an IBCT used McChord AFB as an APOE, with a daily throughput capacity of 2,800 short tons, and Bujumbura and the Entebbe airfields as APODs, with a combined daily throughput capacity of 800 short tons, then a planner can estimate 16 days using Kuperman's methodology.[71] Therefore, working within a daily throughput capacity of 800 short tons in theater, and utilizing two APODs, one could estimate the IBCT arriving 13 days earlier (C+16) than just using the one APOD.[72] However, this still exceeds the CSA's goal by 12 days.[73]

If an IBCT used McChord AFB as an APOE for the IBCT, and Bujumbura, Entebbe, and Kigali airfields as APODs, then a planner can estimate 11 days using Kuperman's methodology.[74] It would take 8 days for the load out of the brigade, then three additional days for the deployment order, start of load out, and the ramp-up of theater airfield capacity. Therefore, working within a daily throughput capacity of 1,200 short tons in theater, by utilizing three APODs, one could estimate the IBCT arriving earlier than using just one or two APODs, but still exceeding the CSA's goal by seven days.[75]

Table 1 displays the results of the IBCT deployment using multiple APODs.

APODs Utilized	Daily Cargo Through-Put Capacity (STons)	Total Deployment Time (Days)	In Excess of CSA's Goal (Days)
1 – Kigali IAP	400	29	24
2- Bujumbura and Entebbe Airfields	800	16	12
3 – Kigali, Bujumbura and Entebbe Airfields	1200	11	7

Table 1 IBCT Deployment Results Utilizing Multiple APODs

From using Kuperman's methodology and comparing the results in table five, one can conclude

Kuperman does not go into detail on the exact composition of the proposed brigade other than two additional light infantry battalions, helicopters, and support personnel, the author approximates this force to be about 250,000 square feet. This is approximately 60,000 square feet greater than the IBCT due to the large square footage of additional helicopters. According to MTMC's *Deployment Planning Guide,* page A-3; one UH-60 battalion is 67,960 square feet in size.

[71] It would take 13 days for the load out of the brigade, then three additional days for the deployment order, start of load out, and the gradual ramp-up of theater airfield capacity.

[72] Using JFAST 6.1, it took 29 days to deploy the IBCT into Kigali IAP. Using two APODs, with Kuperman's calculation methodology, it would take 16 days to deploy the IBCT. 29 days minus 16 days equals 13 days.

[73] 16 days minus 4 days (or 96 hours) equals 12 days.

[74] 10,000 short tons divided by 1,200 daily short ton throughput capacity equals 8.33 days.

[75] 11 days minus four days (or 96 hours) equals seven days.

that the IBCT deploys more rapidly into theater when more APODs are utilized. However, even by utilizing three APODs, the IBCT still was not able to deploy within the CSA's goal of 96 hours.

Furthermore, the additional forces and equipment that would have to be sent to the theater before the deployment of the IBCT would be significant. The Air Force would have to deploy a Tanker Airlift Control Element for each APOD.[76] The CINC would have to provide forces and facilities to conduct RSOI at each APOD. Before the arrival of the IBCT, sufficient forces would have to secure APODs, whether in friendly or unfriendly contingency areas. Force protection will be a significant concern when the IBCT is employed in areas with asymmetric threats. According to *Field Manual 3.0*, "the increased emphasis on force protection at every echelon stems from the conventional dominance of Army forces. Often unable to challenge the Army in conventional combat, adversaries seek to frustrate Army operations by resorting to asymmetric means, weapons, or tactics. Force protection counters these threats."[77]

However, even with the challenges of utilizing additional APODs, according to the *IBCT Organizational and Operational Concept* a core capability of the IBCT is to conduct distributed operations.

> Distributed operations consist of those activities and functions executed simultaneously throughout the depth, width, and height of the area of operations. They are conducted concurrently against multiple decisive points, rather than one decisive point, or a series of decisive points in sequence.[78]

The IBCT is certainly better equipped and designed to deploy to several APODs and conduct distributed operations, than a legacy heavy brigade. Therefore, given this core

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[76]www-cgsc.army.mil/usaf/Courses/AY98-99/300/Lesson2_Rdng7.htm C/M/S300 Lesson 2, Reading 7,USAF Force Projection Fact Sheet AY 98/99 (10 June 1998)**.** Each Tanker Airlift Control Element contains personnel for Aerial Port and Materiel Handling Equipment; combat controllers to control initial air traffic; Tactical Airlift Control Element (TALCE) to coordinate air mobility aircraft airflow; Air Traffic Controllers; Civil Engineering unit; and instrument navigation aids. Initial tasks upon arrival are to secure airfield, install/repair airfield lighting, install/repair instrument navigation aids, expand/construct fuel and weapons storage facilities, expand/repair ramp space, and expand/improve cargo marshaling area
[77] United States Army, *FM 3-0, Operations,* Fort Leavenworth, KS: 2000, 4-8.
[78] *IBCT O&O,* 25.

capability, it would still behoove the Army to work with the Air Force and develop multiple APODs in likely areas throughout the world in which an IBCT might deploy. Certainly, the Air Force will have to commit more of their assets to open and operate several APODs. However, the Army should commit and prepare for the RSOI and security responsibilities at APODs, and ensure those additional forces are included in the TPFDD flow.[79] The RSOI requirements at each APOD include as a minimum, fuel, water, a movement control team, and a material management team. As discussed in chapter two, fuel and water resupply are necessary upon arrival. A movement control team, with material handling equipment, links up material and equipment, arranges any additional lift that may be necessary, and handles all customs and highway regulation requirements in the contingency area. The material management team accesses the theater supply system and processes requisitions. Depending on the unit basic load, food rations may have to be available as well. If high intensity conflict is expected, additional ammunition will have to be available as well. These personnel, equipment, and logistical stocks must arrive in the contingency area before or during the IBCT deployment.[80]

The simulation showed that an IBCT closed in theater sooner by sending its equipment by sealift rather than by airlift. Even with the long arduous 600 mile road march from Mombassa to Rwanda, the IBCT's equipment closed into theater five days earlier (C+24) than by airlift alone (C+29). The wheeled vehicles in an IBCT could conduct this road march much easier than the tracked vehicles in legacy armor or mechanized force. The C+24 date is still 20 days after the CSA's visionary goal of a brigade deployment to anywhere in the world within four days.

Third, the positioning of ships before C-day effected the simulated deployment times. Because the author only used ships from the Military Sealift Command (U.S. flagships) in the deployments, the numbers were limited. The simulation could not draw on Korean ships on the

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[79] *(JP) 4-01.8,* IV –9. Force protection functions at each APOD would include providing theater air defense, providing APOD facility defense, providing Military Police support, and providing protection against weapons of mass destruction. According to page IV-9, the Army would provide a cargo transfer company to integrate with each tanker airlift control element at each APOD. All these forces would significantly add forces and equipment to the flow before the IBCT could deploy.
[80] LTC(P) Waters.

U.S. West Coast near Tacoma. Simply by positioning the two fast sealift ships out of the Atlantic Gulf and off the U.S. West Coast decreased the IBCT's deployment time by eight days.[81]

CHAPTER FOUR

RECOMMENDATIONS FOR ENHANCING THE DEPLOYMENT OF THE IBCT

The JFAST deployment simulation demonstrated that the IBCT could not deploy into Rwanda within 96 hours, the CSA's stated goal in his 1999 vision statement. The simulation showed that it would take 29 days to deploy the IBCT via airlift into the one APOD at Kigali Rwanda; and 24 days to deploy the IBCT via sealift into one SPOD at Mombassa Kenya, and then conducting an overland movement across Kenya, through Tanzania, and into Rwanda. The simulation assumed that there was accurate TPFDD planning and control, adequate airfield and logistics support, air superiority, RSOI, and sufficient security and force protection measures in place at the APODs. Furthermore, the simulation assumed that the IBCT was fully trained in load out procedures to maximize McChord AFB's 2,800 daily throughput capability.

The purpose of this chapter is to recommend enhancements by the Army to increase the deployability of the IBCT based upon results of the JFAST simulation and historical evidence. The recommendations will follow the format of the strategic mobility triad - airlift, sealift, and prepositioning.[82] Even though the IBCT was designed for airlift, the JFAST simulation results demonstrated the IBCT could deploy faster by sealift. Therefore, it is imperative that options including sealift and prepositioning are included in enhancing the IBCT's deployability.

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[81] Also the types of ships used in the simulation resulted in different deployment times. Two fast sealift ships deployed cargo one day sooner to Mombassa than two breakbulk ships and one roll-on/roll ship. Fast sealift ships in the simulation accounted for as much as a four day decrease in deployment times over old breakbulk, roll-on/roll-off, and lash ships. Furthermore, JFAST 6.1's database did not contain any large, medium-speed roll-on/roll-off ships (LMSRs), which can haul significantly more cargo than a fast sealift ship and are faster than a breakbulk or lash ship. According to the Military Sealift Command, *Fact Sheet* a fast sealift ship's maximum speed is 27 knots per hour and an LMSR's speed is 23 knots per hour
[82] Armed Forces Staff College, National Defense University, *Joint Planning Orientation Course (JPOC), Lesson 10 – Transportation Planning*, located at www.ppc.pims.org/projects/jpoc/htmldocs/lesson10.

Airlift recommendations are focused on improving throughput capacity at both the APOE and APOD. The Army can directly affect the throughput capacity at APOEs by emphasizing load out training. Throughput in theater could be improved by the Air Force setting up and operating multiple APODs and by increasing the MOG capability at airfields. The Army can support the addition of multiple APODs in theater by providing additional troops to conduct force protection and security associated with those APODs. The Army can also provide support for RSOI capabilities at the additional APODs. The Air Force has the assigned assets to increase an airfield's MOG capability. However, Army planners need to be aware that any improvements to an APOD's MOG will use most of the initial airlift allocation in an operation.[83] These improvements will also make the IBCT's 96-hour deployment timeline unachievable. To increase an airfield' MOG, additional assets such as forklifts, fuelers, aircraft maintenance equipment, and material handling equipment must be deployed before any IBCT units. If sufficient prior planning has occurred and these assets have been prepositioned near the contingency area, the Air Force plans on three days to transport these assets. However, if an airfield needs additional ramp space, then it may take weeks to make this improvement.[84]

Since most APOEs in CONUS have a large throughput capacity, the Army should emphasize load out deployment training. Historical evidence from Desert Shield demonstrates that even the elite units tagged for the rapid reaction force were untrained in deployment operations.[85] The first IBCT fielded at Fort Lewis Washington will most likely use McChord AFB as an APOE with a large throughput capacity of 2,800 daily short tons. Therefore, the IBCT needs to ensure that they are trained in load out procedures in order to utilize the full capacity of this airfield.

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[83] Owen and Fogle, 18. Owen and Fogle discuss the competition for lift priority between the Army and Air Force. They say, "Army planners should anticipate tough battles over lift priority."

[84] Major James Wesslund, USAF, interview by author, Fort Leavenworth, KS, 16 April 02. Major Wesslund is CGCS instructor in Directorate of Joint Military Operations and an Air Force logistician.

[85] Kuperman, 59. Kuperman explains that the ready brigade from the 82nd Airborne Division required seven days to load out approximately 4,500 tons of cargo. The initial brigade from the 101st Airborne took 17 days to load out 4,000 tons of cargo including 117 helicopters. Kuperman's evidence is supported by John Lund, Ruth Berg, and Corinne Repogle in *An Assessment of Strategic Airlift Operational Efficiency*,

From the analysis of the JFAST results, the daily cargo throughput at the APOD in Kigali Rwanda was the constraining factor in the air deployment of the IBCT. The simulation assumed that the IBCT was fully trained in load out procedures. Kigali IAP only has a daily throughput capacity of 400 short tons as compared to McChord AFB, which has a daily throughput capacity of 2,800 tons. Therefore, a planner should focus on increasing daily cargo throughput in theater. As previously discussed in chapter three, utilizing additional APODs in theater will increase cargo daily throughput. The second way to increase airfield throughput is by increasing the MOG capability. However, the Army is limited in its ability to directly increase MOG capability at each APOD. That capability rests entirely on Air Force assets. The Air Force, through its Air Mobility Command, uses a tanker airlift control element to add personnel and materials handling equipment to a field to increase the MOG capability.[86] As previously discussed, increasing an airfields MOG can take three days to weeks, depending on the condition of the airfield.

The *IBCT Organizational and Operational* states, "the entire IBCT can deploy within 96 hours of first aircraft wheels up…"[87] Taken literally, the Army should not concern itself with the Air Force's problem of increasing the MOG of an airfield or the time it takes the Air Force to set-up an APOD. The 96-hour clock does not start until the Air Force is ready to begin airlift operations. However, such interpretation is service-centered and does not accurately reflect the public attitude when the Army is delayed in deployment operations. During Task Force Hawk in April 1999, Rinas Airport had a MOG capability of only two C-17's.[88] However, the Army received most of the press and public criticism for being slow to deploy.[89]

The air deployability of the IBCT in four days is a problem of physics. The JFAST results show that allocation of airlift is not the constraining factor; rather throughput limitations

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published by Rand Corporation in 1993.
[86] United States Air Force, *AMC Fact Sheet*.
[87] *IBCT O&O*, 8.
[88] Owen and Fogle, 12. Rinas Airport would only support a maximum of two C-17's.
[89] Sean Naylor, "Commander Defends Mission that Launched a Thousand Criticisms," *Army Times*, Vol. 60, Issue 38,17 April 2000, 12. This article reports on a speech by General John Hendrix, former commander of Task Force Hawk, to the Army Aviation Association of America. General Hendrix rebuked the press for unfair criticism of Task Force Hawks slow deployment during Operation Allied Force.

are the constraining factor. In order to complete the deployment of the IBCT in four days the daily cargo throughput capability at both the APOE and APOD would have to be at least 2,500 short tons.[90] Major airfields such as McChord AFB in Washington, Shaw AFB in North Carolina, and Lakenheath AFB in England have the capability to process this much cargo. However, not too many airfields in third world countries possess that capability. The airfields at Kigali Rwanda and Entebbe Uganda each only have a daily throughput capacity of 400 short tons.[91] During Operation Restore Hope in Somalia, daily throughput capacity built up to a maximum of 905 short tons.[92] Major General Dubik uses limited infrastructure in the world as a reason to have an IBCT.

> Does anyone think our next mission will be in a first-world country? No, we will continue to go places that lack everything from major air and seaports to railways, bridges and road networks.[93]

It is very unlikely that the IBCT would be deployed to an area with first-rate airfields.

The Air Force would have to dedicate immense resources to add more APODs in theater and/or increase the MOG capability at the airfields. This would mean more Army support to help run and secure the APODs before the IBCT is deployed. Therefore, the Army needs to examine the other parts of the strategic mobility triad in order to enhance the deployment of the IBCT.

The second part of the strategic mobility triad is sealift. The JFAST simulation demonstrated that the IBCT could deploy more rapidly into Rwanda using sealift than airlift.[94] It took two fast sealift ships, positioned on the West Coast of the United States, 21 days to load and transport the IBCT to Mombassa Kenya. This was eight days faster than using older type ships, such as lash and breakbulk ships.

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[90] Given an unrealistic scenario, the IBCT could deploy to North Carolina in four days using McChord AFB as an APOE and Shaw AFB, with a daily cargo throughput capacity of 4,500 short tons. A 116 C-17s would be required.
[91] Kuperman, 60.
[92] Kassing, 24. Air Mobility Command had to use four airfields in Somalia to reach this capacity.
[93] Dubik, 18.
[94] 24 days to deploy by sea and conduct overland movement. 29 days to fly the IBCT into Rwanda.

During Operation Desert Shield, the Military Sealift Command delivered 95 percent of

all cargo.[95] Recently though, the Army has an aversion to sealift. This is due to the perceived lack

of speed. Indeed *The Joint Staff Officer's Guide* labels sealift as "slow to very slow"[96] During

Task Force Hawk sealift was not used. The Department of Defense *Report to Congress:*

Kosovo/Operation Allied Force After-Action Report states:

> We relied heavily on strategic airlift to deploy forces to the theater, while the
> sealift component of the strategic mobility triad lay essentially idle. This was
> due to the understandable desire of the commanders in the field to have needed
> equipment and personnel transported as quickly as possible; air transport was not
> mandatory in all cases. The impact on operations was that it overburdened
> limited strategic airlift assets and was costly. The proper use of all means of
> strategic lift, supported by earlier assessment of ground and sea infrastructure,
> might result in faster force closure in future deployments.[97]

One has to wonder how much faster the entire force package of Task Force Hawk could have

deployed to Albania if sealift had been used. The Army's current operations in Afghanistan are

heavily dependent on airlift, because of the urgent need for equipment.[98]

Having the fast sealift ships readily available is only part of the sealift solution to the

IBCT. By design, the IBCT must be capable of intratheater deployment by ground, sea, or by C-

130 air transport.[99] Currently there is little evidence that the IBCT is focused on sealift as a

deployability option. The *IBCT Organizational and Operational Concept* does not even mention

sea deployment.

Based upon the results of the JFAST simulation, and an historic reliance on sealift, the

Army needs to ensure that the IBCT can deploy via sealift. Training programs such as sea

emergency readiness exercises would be beneficial. While the Army becomes enamored with the

integrated digital technologies of this force, it must not forget the fundamentals of deployment

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[95] Department of Defense, *Final Report to Congress: Conduct of the Persian Gulf War*, April 1992, E-9.
[96] JFSC Pub–1, 4-73.
[97] DOD *Report to Congress: Kosovo/Operation Allied Force AAR*, 41.
[98] Based on the recent AOASF trip to CENTCOM, there is no emphasis placed on sealift. The reasoning
follows the logic that forces are needed too rapidly in theater to wait for sealift. Therefore, there has been
limited effort to develop an SPOD in theater. A reason given for no SPOD in theater was that the force
protection requirements would be too great.
[99] Mehaffey, 9.

training. The IBCT at Fort Lewis could easily conduct sea emergency deployment exercises using the port of Tacoma.

Therefore, based on the simulation, the Army should pursue planning to use fast sealift ships to move the IBCT. The Army should also pursue a commitment from the U.S. Transportation Command to dedicate fast sealift ships to move the IBCT. Then the IBCT should design a deployment training program, which would focus both on air and ship deployability.

The third part of the strategic mobility triad is prepositioning. Prepositioned equipment sets were not included in the JFAST simulation. However, having afloat sets of IBCT equipment would enhance the deployability of the unit. Since Operation Desert Storm, the Army has made great improvements in its prepositioned sets of heavy brigade equipment. The 1997 Congressional Budget Office Report, *Moving U.S. Forces: Options for Strategic Mobility* concluded that prepositioned equipment would allow deployment of forces more quickly to either major regional conflicts.[100]

There are currently seven heavy brigade preposition sets of equipment: three in Europe, one in Kuwait; one in Korea; one in Qatar; and one afloat. In July 2002, one more brigade heavy set will be afloat.[101] United States Army Europe (USAREUR) has proposed that the three brigade sets in Europe be configured into a lighter, more versatile single set.[102] Such a force will provide a rapid reaction capability to the Balkans.[103]

The Army needs to consider making one of the afloat sets IBCT equipment instead of another heavy brigade equipment. It makes logical sense to keep the heavy brigade sets on land

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[100] United States Congress, Congressional Budget Office Report, *Moving U.S. Forces: Options for Strategic Mobility*, (Washington: U.S. Government Printing Office, 1997) 2.

[101] Headquarters, Department of the Army, Office, Deputy Chief of Staff, Logistics, DALO-FPP, Information Paper: *Army Prepositioned Stocks (APS)-3/Army Prepositioning Afloat (APA),* 10 August 2001.

[102] Headquarters, Department of the Army, Office, Deputy Chief of Staff, Logistics, DALO-FPP, Information Paper: *Army Prepositioned Stocks in Europe (APS-2),* 10 Sep 2001. USAREUR proposed set configuration consists of: (1) an Immediate Ready Force of five M1A1 Abrams tanks, five Bradley Fighting Vehicles, 14 M113A3s, 20 up-armored HMMVs, three HEMMTs, and one SEE; and (2) a battalion task force of 20 M1A1 Abram tanks, 30 Bradley Fighting Vehicles, 14 M113A3s, 10 Cavalry Fighting Vehicles, and a combat support package.

[103] The current USAREUR IRF exists for this purpose. It has already deployed once to Kosovo in August 2000.

in the major theaters of war (i.e. Southwest Asia and Republic of Korea). However, it is more likely that the afloat sets would have to deploy into an operation other than a major theater of war. Deployment into such an operation is more suited toward the employment of an IBCT. Future contingency areas may have limited road and bridge infrastructure that is unsuitable to heavy tracked vehicles. A likely IBCT operational environment will include a weak transportation and logistical infrastructure.[104]

The following deployment scenario supports placing a prepositioned afloat set of IBCT equipment. Macgregor wrote in *Breaking the Phalanx* that two large, medium-speed roll-on/roll-off ships (LMSRs) could deliver a prepositioned brigade set from Diego Garcia to Southwest Asia in five days; thus, reducing the 21 days deployment time of LMSR's steaming from CONUS to Southwest Asia.[105] If a prepositioned afloat set were to deploy to Rwanda, one could plan on the same length of steaming time, five days, to carry a prepositioned afloat set of IBCT equipment from Diego Garcia to Mombassa Kenya. Troops could fly into the military airfield at Nairobi Kenya, and then be bussed to Mombassa to link-up with equipment. A planner would add another four days for equipment offload and another three days for overland movement to Rwanda. The IBCT would arrive in Rwanda in approximately 12 days.[106] This is 17 days faster than deploying the IBCT by airlift, and 9 days faster than deploying the IBCT by sealift.[107]

This chapter has discussed enhancements to improve the deployability of the IBCT through the strategic mobility triad of airlift, sealift, and prepositioning. Recommendations proposed have been supported by JFAST results in chapter two and historical evidence. The JFAST results proved that for airlift, the Army needs to work with the Air Force to improve

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[104] *IBCT O&O*, 7.
[105] Macgregor, 9.
[106] David Kassing, *Transporting the Army for Operation Restore Hope* (Santa Monica CA: Rand Corporation, 1994), 33. The four-day figure to offload the afloat set is based off a well-trained Marine Corps operation in Mogadishu Somalia. Kassing says that the Marine Prepositioned Set started to steam for Mogadishu before the execute order was received, and the first ship completed offloading on C+7. Assuming the ship left Diego Garcia on C day, allowing five day steaming time, the author calculates that it took the Marines two days to offload the first ship.
[107] JFAST resulted in the IBCT deploying by airlift in 29 days. It took the IBCT 21 days to close into Rwanda after deploying via sealift into Mombassa Kenya.

throughput capability in theater. Since JFAST resulted in the IBCT deployed faster by sealift, the Army needs to work with Transportation Command to dedicated fast sealift ships to move the IBCT. Simultaneously, the IBCT should include deployment training for both airlift and sealift operations as a major component to their mission essential task list. Effective deployment of the IBCT requires planners and Army senior leadership to examine all three parts of the strategic mobility triad. However, even while utilizing all parts of the triad, it remains unrealistic that an IBCT could deploy in four days.

The JFAST results assumed many perfect conditions existed to enable a successful deployment, including RSOI, air superiority, and airfield security. If these conditions do not exist before the deployment of the IBCT, then the entire operation could be in jeopardy. In the deployment of legacy forces, the Army deliberately plans for the successful accomplishment of these conditions. The *IBCT Organization and Operational Concept* assumes these conditions will exist, or they are inherently capable within the IBCT organization. However, these conditions are so important that a planner must deliberately address them when planning a deployment. The Army cannot afford to assume that the organizational design of the IBCT properly addresses these conditions.

CHAPTER FIVE

OTHER CONSIDERATIONS

Other major considerations that have not been addressed effect the deployment of any force. These considerations are RSOI, air superiority, and airfield security. The *IBCT Organizational and Operational Concept* briefly addresses these considerations by explaining them away in the design and the employment of the brigade. The JFAST simulation did not address these considerations.   These considerations are so important that they could prevent the successful deployment of any force, regardless of the strategic lift and throughput capabilities.

Therefore, the purpose of this chapter is to briefly discuss their impact to the total deployment equation. An entire monograph addressed some of these considerations related to the IBCT.[108]

RSOI is the final critical phase of deployment. Joint Publication 4-01.8, *Joint Tactics, Techniques, and Procedures for Joint Reception, Staging, Onward Movement, and Integration* defines it as "… the essential processes required to transition arriving personnel, equipment, and materiel into forces capable of meeting operational requirements."[109] RSOI essentially enables a CINC to rapidly build combat power in theater from arriving troops and equipment.

Joint Publication 4-01.8 describes the segments of RSOI. Reception includes functions required to receive soldiers and equipment at the POD. Staging assembles and integrates soldiers with their equipment. Onward movement is the process of moving units to tactical assembly areas. Integration is the handover of the units to the operational commander.[110]

The *IBCT Organizational and Operational Concept* does not address RSOI. It does say that the brigade can "begin operations immediately upon arrival at the aerial port of debarkation (APOD)."[111] One is to conclude then that the IBCT is to RSOI itself. However, recent analysis has shown this not to be the case. The IBCT will still need forces in theater to receive aircraft and soldiers, as well as conduct limited staging operations.[112]

Air superiority is another condition, which is assumed before the deployment of the IBCT. The *IBCT Organizational and Operational Concept* states, "The IBCT's organic structure is based on the assumption that its likely operational environment will not include significant air-

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[108] Major Christopher D. Croft, *RSOI and the IBCT – Relevancy in Future Deployment Operations* (Fort Leavenworth KA: School of Advanced Military Studies, United States Army Command and General Staff College, 2000). Major Croft concludes that the IBCT cannot conduct its own RSOI.
[109] *JP 4-01.8*, GL-10.
[110] Ibid., I-4.
[111] *IBCT O&O*, 8.
[112] Croft, 43-47. Major Christopher D. Croft, a U.S Army Transportation Corps Officer, analyzed what segments of RSOI the IBCT could perform by itself. His results determined that for the reception segment the IBCT required additional forces to receive and unload the aircraft; that the IBCT required some support in the staging segment, but innovations enabled the IBCT to reduce the time of staging; that the IBCT could conduct onward movement tasks using internal assets; and that the IBCT could not conduct all the tasks of integration by itself. Integration requires the establishment of communications with higher headquarters, acclimation of soldiers, and planning tactical operations.

based threat."[113] Inadequate security around airfields could endanger deploying forces. The threat exists in the enemy's ability to use short-range, shoulder fired air defense weapons, against in-bound strategic airlift. If such a threat exists, it must be rooted out before the arrival of any airlift. The *IBCT Organizational and Operational Concept* only addresses security in terms of doctrinal cavalry missions.[114] Airfield security, extending beyond the range of shoulder-fired systems is a prerequisite before any deployment. Additionally, there is no air defense structure within the IBCT's design. Therefore, if a CINC does not possess air superiority, it would be very difficult to employ an IBCT.

These considerations, RSOI, air superiority, and airfield security, can prevent a successful deployment if not adequately addressed in the planning stages of any operation. The *IBCT Organizational and Operational Concept* does not adequately address these considerations. The concept relies too much on the internal capabilities of the brigade. The goal of reducing the legacy "tooth to tail" ratio has left the brigade extremely dependent on other organizations for sustainability and survivability. These concerns go beyond deployability, and warrant further examination. However, these considerations need to be calculated into the IBCT's deployment timeline.

CHAPTER SIX

CONCLUSION

The purpose of the IBCT is to allow the Army to rapidly deploy a lethal and survivable force into contingency areas across the entire spectrum of conflict. With the IBCT, the Army plans to fill the gap between capability and deployability that currently exists between heavy and light forces. Hence, the IBCT was designed to be more lethal, survivable, and effective than a light brigade and more deployable than a heavy brigade. As a deployment yardstick in designing the IBCT, the Army has used 96 hours - the CSA's goal of having a brigade deploy anywhere in

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[113] *IBCT O&O*, 44.
[114] Ibid., 40.

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the world. To achieve this 96-hour goal the Army has designed the entire IBCT on being deployable by air.

Because of this airlift requirement for the IBCT, the brigade is very austere. When deployed into an operational area, the unit will depend on reach-back systems for much of its logistical support including fuel, ammunition, water, and medical resupply. The brigade will only initially have the fuel in its vehicles' fuel tanks for ground mobility. Unit basic load of ammunition in the brigade will barely sustain three days of high intensity combat. Without a theater water distribution system, the brigade is drastically short of meeting its water requirements. The brigade also only deploys with enough repair parts to last it only 96 hours. The organic medical capabilities of the brigade are extremely limited as well, making it dependent on additional hospital support in theater.

Even with this austereness in logistics, simulation has proven that the IBCT cannot deploy into a third world environment, the environment for which the brigade was designed, within 96 hours. Indeed the airlift deployment time will be in weeks, not hours, due to limited throughput capability at any likely aerial ports of debarkation. Evidence of limited throughput slowing down deployments in the simulation is supported by real world contingencies including Operation Restore Hope in Somalia and Task Force Hawk in Albania. Only when deploying the brigade to very well established airfields will the IBCT ever be able to deploy within 96 hours. The probability of ever deploying the brigade to a first-rate region, which possesses first-rate airfields, is highly unlikely and does not equate to full spectrum deployability worldwide.

The IBCT could deploy into multiple airfields and thus take advantage of the unit's distributed operations capability. However, more APODs in theater mean more personnel and equipment to support and secure the APODs. The trade-off in shortening the deployment timeline may not be worth the cost of more resources and increased security or mission risk.

The simulation assumed that the brigade was fully trained in load-out procedures in order to maximize the throughput capability at a large airfield, like McChord AFB in Washington. To decrease deployment timelines, the IBCT must master all the deployment skills. Deployment

training should be a major focus of the unit's mission essential task list. This is just as important as tactical training.

Additionally, because of the IBCT's logistical austereness, the airlift needed to establish the logistical infrastructure to support the brigade's deployment will compete with the organic elements of the brigade. Thus, the actual deployment time of the organic units of the brigade will be much longer than simulated. The IBCT will also compete for airlift with the Air Force. Airlift will be needed to move the Air Force tanker airlift control elements to an airfield before the arrival of any IBCT troops, as well as for all air operations.

The design of the IBCT is dependent on other conditions that must be met before its deployment. These conditions include effective Reception Staging and Onward Integration, air superiority, and airfield security. The brigade cannot RSOI itself. Additional forces will have to be on the ground to accomplish this function. Airlift for the personnel and equipment necessary for RSOI may lengthen the deployment of the IBCT. Additionally, the IBCT is designed only to deploy into areas with air superiority. However, if air superiority does not exist in a theater, deployment can be a dangerous slow process and extremely risky. Airfield security is also assumed in the deployment of an IBCT. Small shoulder-fired air defense weapons can threaten airlift. One rocket-propelled grenade could destroy a C-17 aircraft as it is making its final approach into an airfield. If airfields are not properly secured, deployments could be prevented.

The Army needs to stop publicizing its 96-hour goal. It is impossible that the IBCT will ever be able to reach this goal. Instead, the Army should focus on enhancing the deployability of the IBCT. The simulation results demonstrated that the IBCT could deploy faster to Rwanda by sea than by air. The IBCT could deploy more logistics using sealift, and would be much more sustainable and survivable. Therefore, the Army needs to reexamine other parts of the strategic mobility triad in deploying the IBCT. Simulation results demonstrated the capabilities of fast sealift ships over older type ships. As the primary customer, the Army should support significant, critical, and expensive improvements to the Military Sealift Commands fleet. The IBCT should also train on its ability to deploy by sea. Sea Emergency Readiness Exercises can be executed

with the IBCT at Fort Lewis Washington, using Tacoma as an SPOE. Furthermore, the Army needs to examine the possibility of prepositioning an IBCT set of equipment afloat, reducing the steaming time of the brigade from CONUS.

This monograph did not discuss the advantages and disadvantages of an IBCT's capability. Only the validity of deploying the unit in 96 hours was examined. The IBCT maybe a necessary force structure change to the Army. However, the Army should not advertise the unit will deploy in 96 hours. Additionally, the Army should not rely solely on airlift for deployment of the force. The service needs to return to the fundamentals of modern deployment when deploying the IBCT, combining sealift with airlift.

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Webb, Kevin Major, USAF. Interview by author 16 April 2002, Fort Leavenworth, KS.

Wesslund, James Major USAF. Interview by author 16 April 2002, Fort Leavenworth, KS.